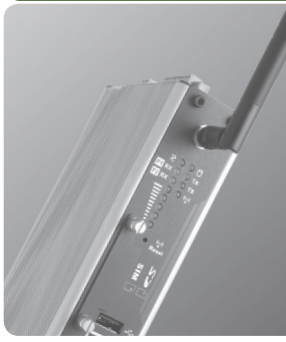
Wireless Computers

W406 Series RISC modules—4 serial ports, DI/DO, LAN, VGA, SD, USB 8-2
W315A/325A RISC modules—1 or 2 serial ports, LAN, SD. 8-6
W311/321/341 RISC modules—1/2/4 serial ports, LAN, SD, relay output 8-9

8

Wireless Computers



W406 Series

RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DOs, 2 serial ports, Ethernet, SD

TAIWAN EXCELLENCE 2010

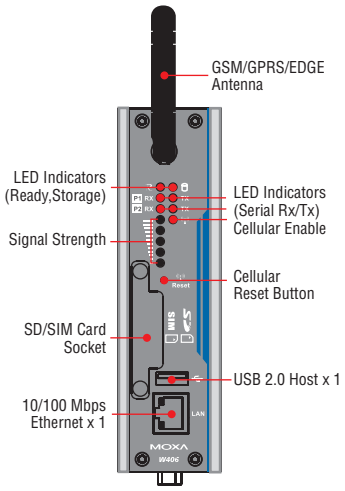
- Cirrus Logic EP9302 32-bit ARM9 processor
- 32 MB RAM on-board (maximum 64 MB)
- 16 MB Flash built in (maximum 32 MB)
- Built-in GSM/GPRS/EDGE cellular communication
- GSM 850/900/1800/1900 MHz supported
- GPRS/EDGE Class 12 supported
- SMS tunnel mode provided
- 4 DIs, 4 DOs
- Two software selectable RS-232/422/485 serial ports
- 50 bps to 921.6 Kbps (non-standard baudrates supported)
- 10/100M Ethernet for network redundancy
- SD socket for storage expansion
- WinCE 6.0 or Linux 2.6 platform
- Din-Rail or wall mount installation
- Robust, fanless design
- Wide temperature models available by request

Overview

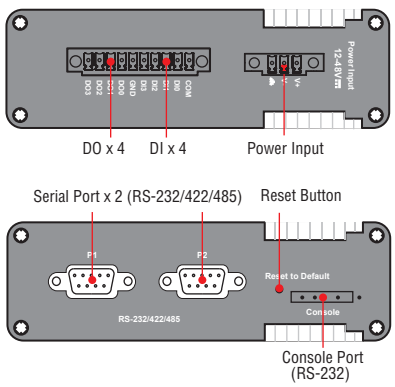
The W406 is an embedded Linux or WinCE computer that features 2 software selectable RS-232/422/485 ports, 1 Ethernet port, and quad-band GSM/GPRS/EDGE 900/1800/850/1900 MHz for cellular communication. It also comes with an SD socket, USB host, and 4 digital input and 4 digital output channels, making it the ideal computer for a variety of industrial applications such as data acquisition, data processing, protocol conversion, and remote device control and monitoring via wireless communication. The W406 comes pre-installed with either Linux or WinCE 6.0, and offers a reliable and powerful computing platform for industrial environments. Programmers will find that the W406 provides a convenient programming environment for producing bug-free industrial applications at a lower cost.

Appearance

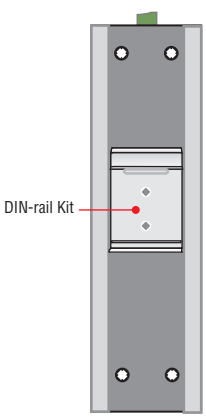
W406 Front View



W406 Top/Bottom View



W406 Rear View



Hardware Specifications

Computer
CPU: Cirrus Logic EP9302 ARM9 32-bit RISC CPU, 200 MHz
OS (pre-installed): WinCE 6.0/Embedded Linux with MMU support
DRAM: 32 MB (64 MB max.)
Flash: 16 MB (16 MB max.)
USB: USB 2.0 compliant hosts x 1, type A connector

Storage
Storage Expansion: SD slot

Ethernet Interface
LAN: 1 auto-sensing 10/100 Mbps port (RJ45)
Magnetic Isolation Protection: 1.5 KV built-in

Cellular Interface
Cellular Modes: GSM, GPRS, EDGE
Radio Frequency Bands: 850/900/1800/1900 MHz
GPRS Class: 12
EDGE Class: 12
Coding Schemes: CS1 to CS4

Serial Interface
Serial Standards: 2 RS-232/422/485 ports, software-selectable (DB9 male)
ESD Protection: 15 KV ESD protection for all signals
Console Port: RS-232 interface (TxD, RxD, GND), with 4-pin pin header output

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485
Baudrate: 50 bps to 921.6 Kbps (non-standard baudrates supported; see user's manual for details)

Serial Signals
RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND

Digital Input
Input Channels: 4, source type
Input Voltage: 0 to 30 VDC
Digital Input Levels for Dry Contacts:
• Logic level 0: Close to GND
• Logic level 1: Open
Digital Input Levels for Wet Contacts:
• Logic level 0: +3 V max.
• Logic level 1: +10 V to +30 V (COM to DI)
Connector Type: 6-pin screw terminal block (4 points, COM, GND)
Isolation: 3 KV optical isolation

Digital Output
Output Channels: 4, sink type
Output Current: Max. 200 mA per channel
On-state Voltage: 24 VDC nominal, open collector to 30 V
Connector Type: 5-pin screw terminal block (4 points, GND)
Isolation: 3 KV optical isolation

LEDs
System: Ready, Storage
LAN: 10M/Link, 100M/Link (on connector)
Cellular: Cellular Enable, Signal Strength (5 LEDs)
Serial: TxD, RxD

Switches and Buttons
Reset Button: Supports "Reset to Factory Default"
Cellular Reset Button: Supports cellular reset function

Physical Characteristics
Housing: Aluminum (1 mm)
Weight: 1 kg
Dimensions: (without ears or antenna)
144 x 119 x 40 mm (5.67 x 4.69 x 1.57 in)
Mounting: DIN-rail, wall (requires optional wall mount kit)
Antenna Length: 85 mm

Environmental Limits
Operating Temperature:
Standard Models: -10 to 60°C (14 to 140°F)
Wide Temp. Models: Available by request
Storage Temperature:
Standard Models: -20 to 80°C (-4 to 176°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-vibration: 2 g's @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis
Anti-shock:
• 6 g's @ IEC-68-2-27, half sine wave, 11 ms (when attached to DIN-Rail kit)
• 20 g's @ IEC-68-2-27, half sine wave, 11 ms (when attached to optional wall mount kit)

Power Requirements
Input Voltage: 12 to 48 VDC
Power Consumption:
With no load on USB ports: 7.2 W
• 300 mA @ 24 VDC
• 600 mA @ 12 VDC
With full load on USB ports: 14.4 W
• 600 mA @ 24 VDC
• 1200 mA @ 12 VDC

Standards and Certifications
Safety: EN 60950-1, CSA C22.2 No. 60950-1-03
EMC: EN 55022 Class B, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class B
Radio: EN 301 489-1, EN 301 489-7, EN 301 511
Green Product: RoHS, CRoHS, WEEE

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock) with battery backup
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (mean time between failures): 170,162 hrs

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty
Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adaptor and cables.

Software Specifications

Linux

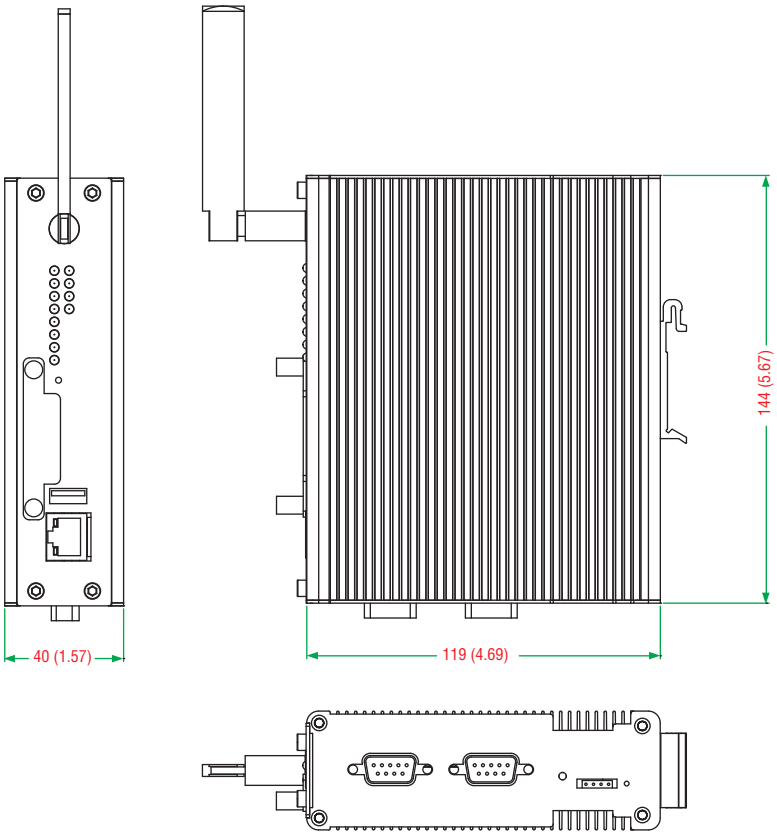
OS: Linux 2.6.23
File System: JFFS2 (for on-board flash)
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, Telnet, FTP, TFTP, PPP, PPPoE
Internet Security: OpenVPN, iptables firewall
Web Server (Apache): Allows you to create and manage Web sites, supporting PHP and XML
Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network.
Dial-up Networking: PPP Daemon for Linux allows Unix machines to connect to the internet through dialup lines, using the PPP protocol, as a PPP server or client. Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP and (for Linux) IPX (Novell).
Watchdog: Features a software function to trigger system reset in a user specified time interval. (MOXA API provided)
Application Development:
• Moxa API Library (Watchdog timer, Moxa serial I/O control, Moxa DI/DO API)
• GNU C/C++ Cross-Compiler
• GNU C library
• GDB source-level debugging server
Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

Windows Embedded CE 6.0

OS: Windows Embedded CE 6.0 R2
File System: FAT (for on-board flash)
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP
Web Server (WinCE IIS): Supports ASP, ISAPI Secure Socket Layer (SSL 2/3) and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions
Dial-up Networking: Supports RAS client API and PPP, Extensible Authentication Protocol (EAP), and RAS scripting
Watchdog: Features a hardware function to trigger system reset in a user specified time interval. (Moxa API provided)
Application Development Software:
• Moxa WinCE 6.0 SDK
• Moxa API Library
• C Libraries and Run-times
• Component Services (COM and DCOM)
• Microsoft® .NET Compact Framework 2.0 with SP2
• Winsock 2.2

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

W406-LX: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, Linux 2.6 OS, -10 to 60°C operating temperature
W406-CE: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, WinCE 6.0 OS, -10 to 60°C operating temperature
W406-T-LX: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, Linux 2.6 OS (contact Moxa for details about this wide temp. computer)
W406-T-CE: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, WinCE 6.0 OS (contact Moxa for details about this wide temp. computer)

Optional Accessories (can be purchased separately)

PPWR-24250-DT-ST: Power adaptor
PWC-C7US-2B-183: Power cord with 2-pin connector, USA plug
PWC-C7EU-2B-183: Power cord with 2-pin connector, Euro plug
PWC-C7UK-2B-183: Power cord with 2-pin connector, British plug
PWC-C7AU-2B-183: Power cord with 2-pin connector, Australia plug
PWC-C7CN-2B-183: Power cord with 2-pin connector, China plug

Package Checklist

- W406 embedded computer
- Wall mounting kit (optional)
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- GSM/GPRS/EDGE Antenna
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

W315A/325A

RISC-based embedded computers with GSM/GPRS, LAN, and 1 or 2 serial ports

W315A W325A

- MOXA ART ARM9 32-bit 192 MHz processor
- 32 MB RAM, and 16 MB flash disk onboard
- Built-in quad band GSM/GPRS 850/900/1800/1900 MHz
- GPRS Class 10, coding scheme from CS1 to CS4 supported
- 1 or 2 software-selectable RS-232/422/485 serial ports
- 10/100 Mbps Ethernet for network redundancy
- Designed to withstand a continuous 5-g vibration and 50-g shocks
- SD slot for storage expansion
- Ready-to-run Linux Kernel 2.6 platform
- DIN-Rail or wall mount installation
- Robust, fanless design

Overview

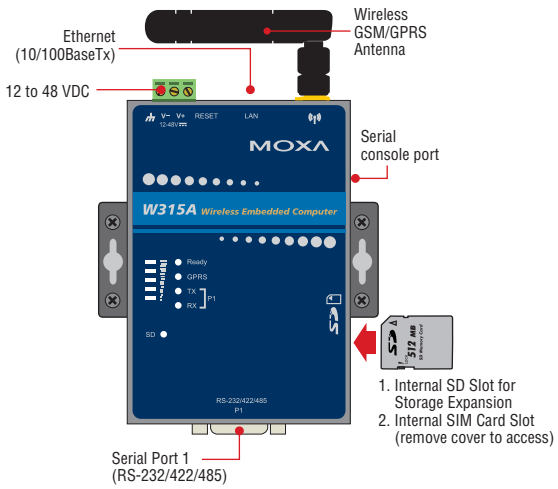
The W315A/325A are embedded Linux computers that feature 1, 2, or 4 software selectable RS-232/422/485 ports, 1 Ethernet port, and quad-band GSM/GPRS 850/900/1800/1900 MHz for cellular communication. Both the W325A and W345A come with an SD socket for external storage expansion. The W315A/325A computers' Linux OS runs on the MOXA ART 32-bit ARM9 processor, which provides a powerful and reliable platform for harsh, industrial environments. You will find these computers ideal for a variety of machine-to-machine applications, including data acquisition, protocol conversion, and remote device control and monitoring.

The W315A and W325A, which are upgrades of the W315 and W325, provide the following benefits not provided by the W315 and W325:

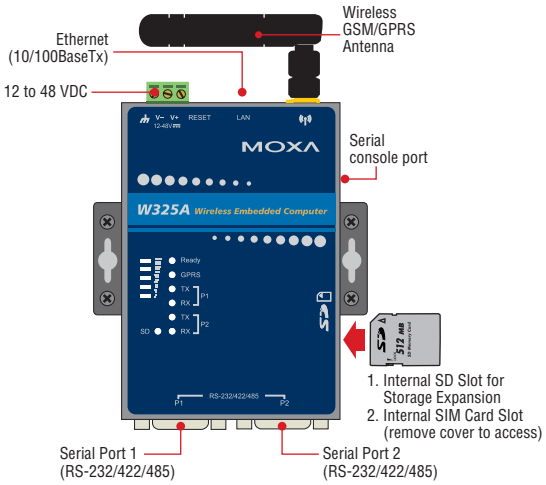
1. Users can execute commands while GPRS is connected
2. Application program development is much easier using the Rcore package

Appearance

W315A



W325A



Hardware Specifications

Computer
CPU: MOXA ART ARM9 32-bit RISC CPU, 192 MHz
OS (pre-installed): Embedded Linux with MMU support
DRAM: 32 MB
Flash: 16 MB

Storage
Storage Expansion: SD slot

Ethernet Interface
LAN: 1 auto-sensing 10/100 Mbps port (RJ45)
Magnetic Isolation Protection: 1.5 KV built-in

Cellular Interface
Cellular Modes: GSM, GPRS
Radio Frequency Bands: 850/900/1800/1900 MHz
GPRS Class: 10
Coding Schemes: CS1 to CS4

Serial Interface
Serial Standards: 1 or 2 RS-232/422/485 ports, software-selectable (DB9 male)
ESD Protection: 15 KV ESD protection for all signals
Console Port: RS-232 interface (TxD, RxD, GND), with 4-pin pin header output

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485
Baudrate: 50 bps to 921.6 Kbps (non-standard baudrates supported; see user's manual for details)

Serial Signals
RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND

LEDs
System: Ready, SD
LAN: 10M/Link, 100M/Link (on connector)
Cellular: GPRS Enabled, GSM Signal Strength
Serial: TxD, RxD

Switches and Buttons
Reset Button: Supports "Reset to Factory Default"

Physical Characteristics
Housing: Aluminum (1 mm)
Weight: 195 g
Dimensions: (without ears or antenna)
77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
Mounting: DIN-rail (requires optional DK-35A DIN-rail kit), wall
Antenna Length: 84 mm

Environmental Limits
Operating Temperature: -10 to 60°C (14 to 140°F)
Storage Temperature: -20 to 80°C (-4 to 176°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-vibration: 5 g's @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis
Anti-shock: 50 g's @ IEC-68-2-6, half-sine wave, 30 ms

Power Requirements
Input Voltage: 12 to 48 VDC
Power Consumption:
Without GPRS loading: 4.8 W
• 100 mA @ 48 VDC
• 200 mA @ 24 VDC
• 400 mA @ 12 VDC
With GPRS loading: 12 W
• 330 mA @ 48 VDC
• 534 mA @ 24 VDC
• 970 mA @ 12 VDC

Standards and Certifications
Safety: UL 60950-1, EN 60950-1, CSA C22.2 No. 60950-1-03
EMC: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A
Radio: EN 301 489-1, EN 301 489-7, EN 301 511
Green Product: RoHS, CRoHS, WEEE

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock) with battery backup
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (mean time between failures): 674,725 hrs

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Software Specifications

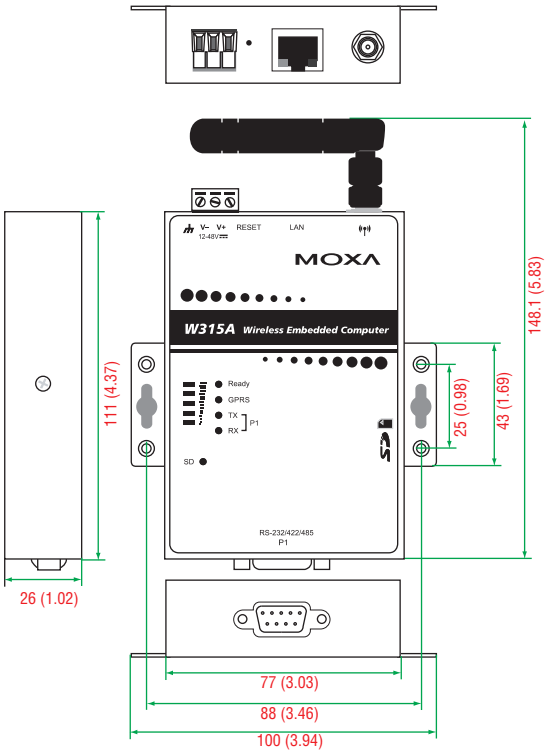
Linux
OS: Linux 2.6.9
File System: JFFS2 (for on-board flash)
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, Telnet, FTP, TFTP, PPP, PPPoE
Internet Security: OpenVPN, iptables firewall
Web Server (Apache): Allows you to create and manage Web sites, supporting PHP and XML
Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network.
Dial-up Networking: PPP Daemon for Linux allows Unix machines to connect to the internet through dialup lines, using the PPP protocol, as a PPP server or client. Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP and (for Linux) IPX (Novell).
Watchdog: Features a software function to trigger system reset in a user specified time interval. (MOXA API provided)

Application Development:
• Moxa API Library (Watchdog timer, Moxa serial I/O control, Moxa DI/DO API)
• GNU C/C++ Cross-Compiler
• GNU C library
• GDB source-level debugging server
Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

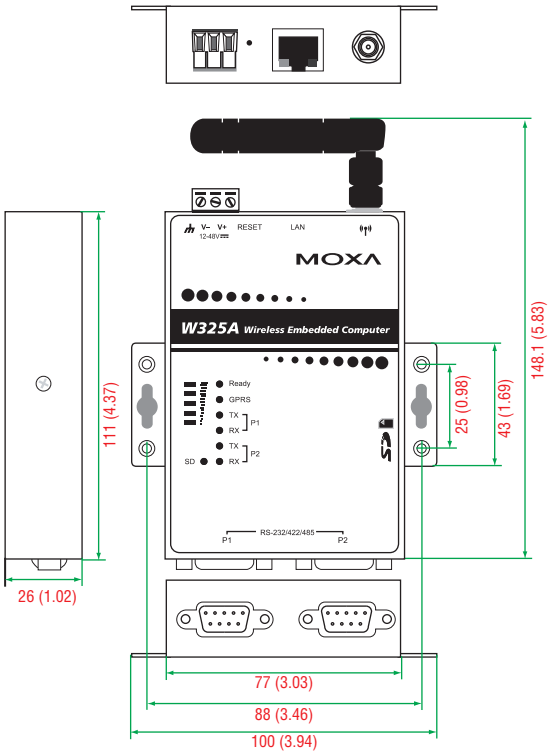
Dimensions

Unit: mm (inch)

W315A



W325A



Ordering Information

Available Models

W315A-LX: RISC-based wireless embedded computer with GSM/GPRS, 1 serial port, LAN, and SD
W325A-LX: RISC-based wireless embedded computer with GSM/GPRS, 2 serial ports, LAN, and SD

Optional Accessories (can be purchased separately)

DK-35A: Mounting kit for 35-mm DIN-Rail

Package Checklist

- W315A or W325A embedded computer
- Wall mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- GSM/GPRS antenna
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

W311/321/341

RISC-based embedded Linux computers with WLAN, LAN, and 1, 2, or 4 serial ports

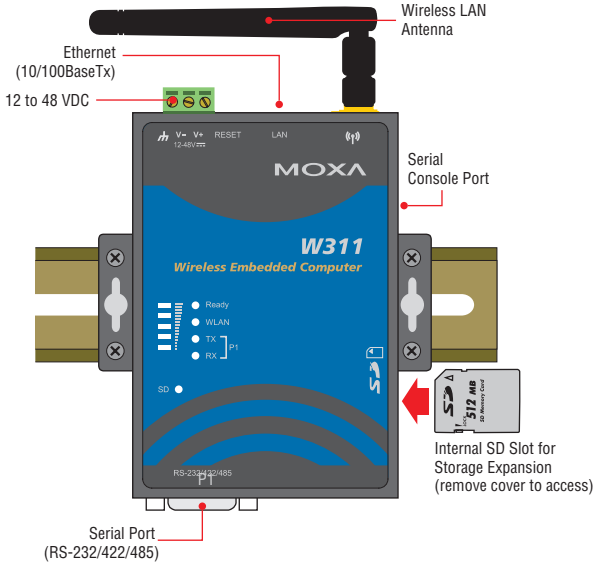
- MOXA ART ARM9 32-bit 192 MHz processor running Linux 2.6
- 32 or 64 MB RAM, and 16 MB flash disk on board
- 802.11a/b/g WLAN with repeater function
- WEP, WPA, and WPA2 encryption
- 10/100 Mbps Ethernet for network redundancy
- Relay output for external alarm connection (W341 only)
- SD socket for storage expansion
- DIN-Rail or wall mount installation
- Designed to withstand continuous 5-g vibration and 50-g shocks
- Robust, fanless design

Overview

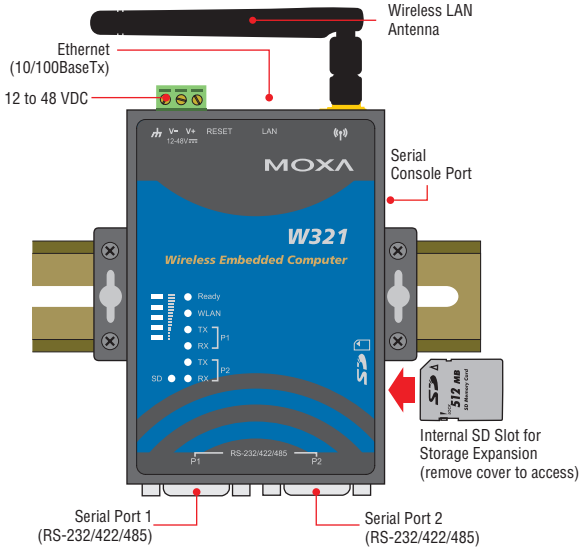
The W311/321/341 embedded Linux computers feature 1, 2, or 4 software selectable RS-232/422/485 ports, and support the IEEE 802.1a/b/g standards for WLAN connections. In addition, the computers have 1 Ethernet port, and some models come with USB 2.0 hosts and an SD socket for storage expansion. The W311/321/341 computers' Linux OS runs on the MOXA ART 32-bit ARM9 processor that provides a powerful and reliable platform for harsh, industrial environments. You will find these computers ideal for a variety of machine-to-machine applications, including data acquisition, protocol conversion, and remote device control and monitoring.

Appearance

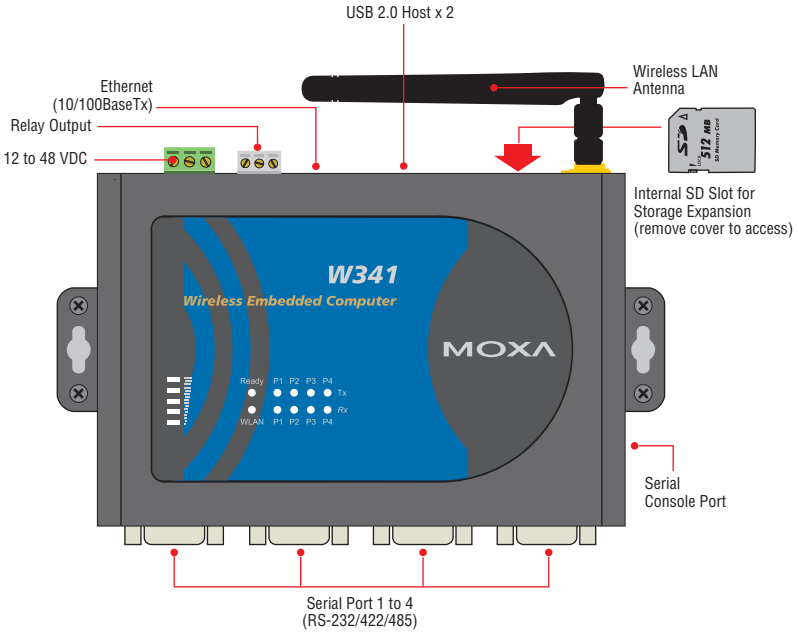
W311



W321



W341



Hardware Specifications

Computer

CPU: MOXA ART ARM9 32-bit 192 MHz
OS (pre-installed): Embedded Linux with MMU support
DRAM:
W311/321: 32 MB
W341: 64 MB
Flash: 16 MB
USB: (W341 only) USB 2.0 compliant hosts x 2, type A connector
Relay Output: (W341 only)
• Form C, SPDT x 1
• Normal Switching Capacity: 2 A @ 30 VDC
• Switching Power: 60 W max.
• Switching Voltage: 220 VDC max.
• Switching Current: 2 A max.
• Operating Time: 4 ms @ 20°C
• Initial Contact Resistance: 100 milli-ohm max.

Storage

Storage Expansion: SD slot

Ethernet Interface

LAN: 1 auto-sensing 10/100 Mbps port (RJ45)
Magnetic Isolation Protection: 1.5 KV built-in

WLAN Interface

Standard Compliance: 802.11a/b/g
Radio Frequency Type: DSSS, CCK, OFDM
Media Access Protocol: CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance)
Tx Power (typical):
• 5.15-5.35 GHz: 14 dBm @ 6 Mbps, 14 dBm @ 54 Mbps
• 5.725-5.825 GHz: 14 dBm @ 6 Mbps, 13 dBm @ 54 Mbps
• 2.412-2.483 GHz (802.11g): 17 dBm @ 6 Mbps, 15 dBm @ 54 Mbps
• 2.412-2.472 GHz (802.11b): 18 dBm @ 1-11 Mbps
Rx Sensitivity (typical):
• 5.15-5.35 GHz: 6 Mbps @ -82 dBm, 54 Mbps @ -67 dBm
• 5.47-5.725 GHz: 6 Mbps @ -82 dBm, 54 Mbps @ -67 dBm
• 5.725-5.825 GHz: 6 Mbps @ -80 dBm, 54 Mbps @ -69 dBm
• 2.412-2.472 GHz (802.11g): 6 Mbps @ -84 dBm, 54 Mbps @ -69 dBm
• 2.412-2.472 GHz (802.11b): 11 Mbps @ -82 dBm, 1 Mbps @-90 dBm
Transmission Rate: 54 Mbps (max.) with auto fallback (54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps)
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
• 802.11b: 1, 2, 5.5, 11 Mbps
Transmission Distance: Up to 100 meters (@ 11 Mbps in open areas)
Antenna Connector: Reverse SMA
Antenna: External 2 dbi dipole antenna
Wireless Security: WEP: 64-bit/128-bit, WPA, WPA2 data encryption
WLAN Modes: Ad-hoc (802.11b/g), Infrastructure

Serial Interface

Serial Standards: 1, 2, or 4 RS-232/422/485 ports, software-selectable (DB9 male)
ESD Protection: 15 KV ESD protection for all signals
Console Port: RS-232 interface (TxD, RxD, GND), with 4-pin pin header output

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485
Baudrate: 50 bps to 921.6 Kbps (non-standard baudrates supported; see user's manual for details)

Serial Signals

RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND

LEDs
System: Ready, SD
LAN: 10M/Link, 100M/Link (on connector)
WLAN: Enable, Signal Strength
Serial: TxD, RxD

Switches and Buttons
Reset Button: Supports "Reset to Factory Default"

Physical Characteristics
Housing: Aluminum (1 mm)
Weight:
W311: 170 g
W321: 185 g
W341: 390 g
Dimensions: (without ears or antenna)
W311/W321: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
W341: 150 x 100 x 38 mm (5.91 x 3.94 x 1.50 in)
Mounting: DIN-rail (requires optional DK-35A DIN-rail kit), wall

Environmental Limits
Operating Temperature: -10 to 60°C (14 to 140°F)
Storage Temperature: -20 to 80°C (-4 to 176°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-vibration: 5 g's @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis
Anti-shock: 50 g's @ IEC-68-2-6, half-sine wave, 30 ms

Power Requirements
Input Voltage:
W311 and W321: 12 to 48 VDC
W341: 12 to 48 VDC
Power Consumption:
W311/321: 4.8 W
• 200 mA @ 24 VDC
• 400 mA @ 12 VDC
W341:
With no load on USB ports: 7.2 W
• 300 mA @ 24 VDC
• 600 mA @ 12 VDC
With full load on USB ports: 14.4 W
• 600 mA @ 24 VDC
• 1200 mA @ 12 VDC

Standards and Certifications
Safety: UL 60950-1, EN 60950-1
EMC: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024
Radio: EN 301 489-1/17, EN 301 893, EN 300 328, EN 50392, FCC Part 15, Subpart C/E
Wheeled Vehicles: e-Mark (e13) (W311/321 only)
Green Product: RoHS, CRoHS, WEEE

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock) with battery backup
Automatic Reboot Trigger: Built-in WDT (watchdog timer) supporting 1-255 level time interval system reset, software programmable
MTBF (mean time between failures):
W311: 501,331 hrs
W321: 367,253 hrs
W341: 284,702 hrs

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Software Specifications

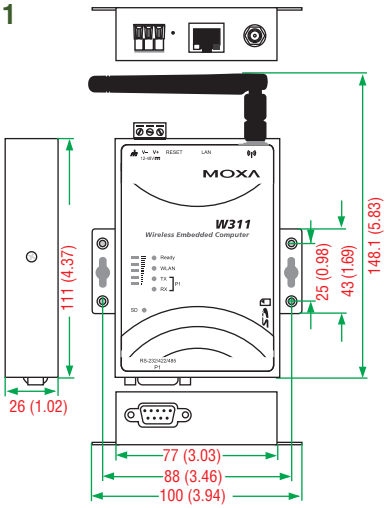
Linux
OS: Linux 2.6.9
File System: JFFS2 (for on-board flash)
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, Telnet, FTP, TFTP, PPP, PPPoE
Internet Security: OpenVPN, iptables firewall
Web Server (Apache): Allows you to create and manage Web sites, supporting PHP and XML
Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network.
Dial-up Networking: PPP Daemon for Linux allows Unix machines to connect to the internet through dialup lines, using the PPP protocol, as a PPP server or client. Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP and (for Linux) IPX (Novell).
Watchdog: Features a software function to trigger system reset in a user specified time interval. (MOXA API provided)
Application Development:
• Moxa API Library (Watchdog timer, Moxa serial I/O control, Moxa DI/DO API)
• GNU C/C++ Cross-Compiler
• GNU C library
• GDB source-level debugging server
Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

Model Name	Serial Ports	LAN Port	WLAN	Cellular	Relay Output	Storage		OS
	RS-232/422/485	10/100 Mbps	802.11a/b/g	GSM/GPRS Quad Band		SD	USB	
W311	1	1	✓	–	–	✓	–	Linux
W321	2	1	✓	–	–	✓	–	Linux
W341	4	1	✓	–	1	✓	2	Linux

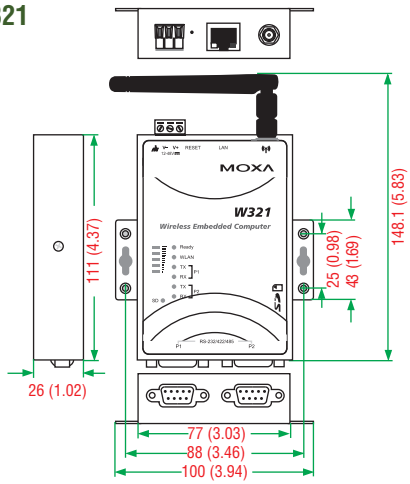
Dimensions

Unit: mm (inch)

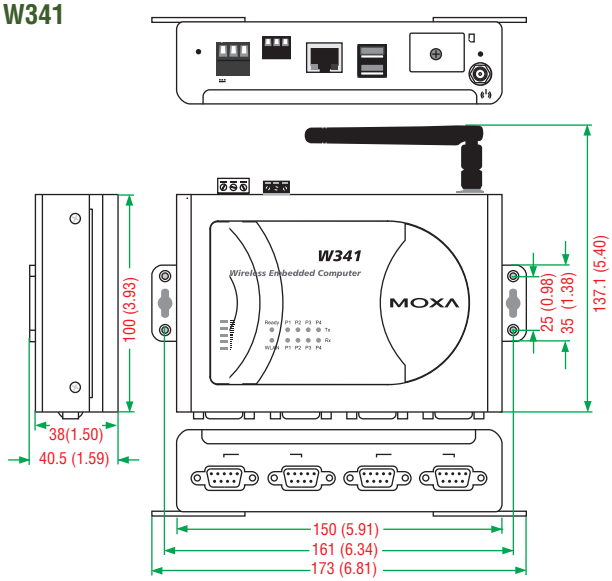
W311



W321

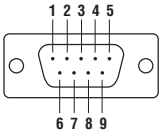


W341



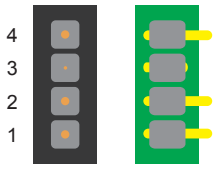
Pin Assignment

Male DB9



PIN	RS-232	RS-422/485-4w	RS-485-2w
1	DCD	TxD-(A)	–
2	RxD	TxD+(B)	–
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

Serial Console port



PIN	
1	TxD
2	RxD
3	NC
4	GND

Ordering Information

Available Models

W311-LX: RISC-based wireless embedded computer with WLAN, 1 serial port, LAN, and SD
W321-LX: RISC-based wireless embedded computer with WLAN, 2 serial ports, LAN, and SD
W341-LX: RISC-based wireless embedded computer with WLAN, 4 serial ports, LAN, SD, USB, and relay output

Optional Accessories (can be purchased separately)

DK-35A: Mounting kit for 35-mm DIN-Rail

Package Checklist

- 1 W311 or W321 or W341 computer
- Wall mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- Universal power adaptor (including terminal block to power jack converter)
- WLAN Antenna
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card